
Designing Report Forms

Overview

The MAT application includes several pre-designed forms you can use to run the most common reports. MAT also includes a Report Generator module that includes a Forms editor. The editor lets you modify existing forms or create your own forms for customized reports.

The Forms editor lets you generate a customized layout for a report by piecing together predefined report sections.

Form Section Concepts

The Report Generator organizes a report by sections. A report form can contain one or more sections:

- Report Header
- Page Header
- Sort Header(s)
- Detail Section
- Page Footer
- Sort Footer(s)

Each of these sections is optional, but a form must contain at least one section and can have only one of each type. Each section allows an internal free layout of data. The only restriction is the position a section occupies on the report in relation to the other sections.

When you insert a new section in a form, it automatically positions itself correctly relative to other sections. This position is indicated in the Editor window by a line with the section title printed on it. This line is not part of the form, it merely serves as the top boundary of the section it indicates. The list above indicates the order in which the sections will appear in the form.

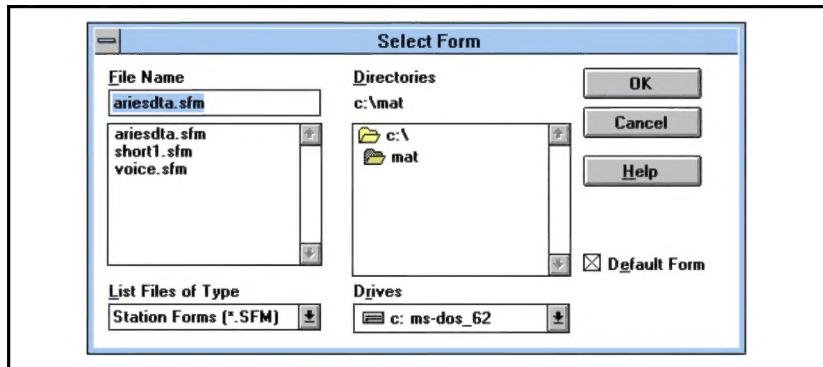
Arranging sections within a form is described in “Manipulating Sections” on page 121.

The Forms Editor

The Forms Editor is an application within the Report Generator that lets you design and customize a report using the current database.

Use the MAT Report Generation Form menu to access the Forms Editor. If you select **Form - New Report Format**, the Forms Editor is invoked immediately with a blank form in the working area. Select **Form - Open Existing Report Format** to display a dialog that lets you select from a list of forms for the current site database.

Figure 49
Select a Form File dialog



The currently selected form is highlighted. Select a form from the list and choose **OK** to invoke the Forms Editor. The Forms Editor contains a menu of actions to perform:

Forms Editor File Menu

This menu contains commands for saving the current report file and specifying the report parameters.

Select Report View: Lets you select the key selection criteria that determine the content of the report at runtime.

Save: Store the current report form to a file. If it is a new form, you are prompted for a filename (must be DOS-compatible, up to eight characters with an up to three character extension following a period).

Save As...: Store the current report form to a DOS-compatible filename. Report form files must be stored in the `matwork` directory. MAT will not allow changes to the path for these files.

Printer Setup: The Windows default printer is automatically assigned to the current form when you save it. This selection lets you select a different printer and printer configuration to be associated with the current form from a list of installed printers.

The printer options that you select here determine the width and height of the report. The width of the report is indicated by the length of the section separation lines in the form editor window.

Exit: Close the forms editor and return to the Report Generation window. If the current form has not been saved since the last change, you are prompted to save it before exiting the editor.

Forms Editor Edit Menu

This menu contains miscellaneous edit and cursor navigation functions:

Picture From Clipboard: Inserts a bitmap image in the Windows clipboard at the current cursor position.

Picture From Disk File: Lets you choose a bitmap image stored in the default directory for insertion at the current cursor position.

Insert Line After/Before: Puts a blank line following/preceding the current cursor position

Delete Line: Removes the current line, moving all successive lines up.

Highlight Off: Turns off any highlighting in the current form (lets you deselect text and fields).

Beginning/End of Line: Moves the cursor to the left/right end of the current line.

Next/Previous Word: Moves the cursor to the beginning of the next/previous word or field in the form, going to the next/previous line if necessary.

Forms Editor Section Menu

This menu contains commands to insert, edit, and delete report sections.

New...: Lets you add a section to the current form. Sections include:

- Report Header - Appears at the top of the report only.
- Page Header - Appears at the top of each page of the report
- Detail Section - Defines data to be reported
- Page Footer - Appears at the bottom of each page of the report
- Sort n Header - The n th sort criterion field for the report ($n = 1 - 9$)

The section title is displayed at the current position of the selected section on the form. This line indicates the Editor cursor location—it will not appear on the printed form.

Edit Current...: Lets you define the layout of the section in which the editor cursor is currently positioned. Displays a dialog containing check-boxes for defining section layout at runtime. Choices include:

- Start new page before this section.
- Start new page after this section.
- Do not include blank lines.
- Suppress trailing (or leading) blanks in a field.
- Titles on every page of the report.

Delete Current...: Removes the section in which the cursor is currently positioned.

Sort Field...: Lets you change the current sort field selection. This selection is not available unless the form has sort fields defined (use the **Section New** function to insert sort fields).

Break Field...: In a typical report, the break field is the same as the sort field. This selection lets you define a field for a section break that is not a sort field.

Forms Editor Field Menu

This menu contains options to insert, modify, delete, and maintain fields.

Insert New Fields: Displays a submenu that lets you choose a field type for insertion into the form at the cursor position. Field types include:

- Data Field
Displays a list of data fields in a record of the Site database
- Calculation Field
Displays a box for entering a formula for the field
- System Field
Displays a list of MAT system fields
- Dialog Field
Allows a prompt for data entry during report execution

Edit Current Field...: Lets you modify attributes for the current field.

Edit Field Expression...: If you have a calculated field at the cursor position, this selection lets you modify the formula.

Edit Dialog Field Table: A Dialog field causes display of a prompt for data entry at runtime. This selection lets you add, modify, or delete items in a list of such fields.

- Create... Add a prompt field to a list of prompt fields
- Modify... Define the field length and prompt sequence at runtime.
- Delete... Remove a prompt field from the list.

Forms Editor Options Menu

This menu lets you define the appearance of the report and select data records for inclusion in the report.

Report Parameters...: Brings up a dialog that allows you to specify certain report parameters:

- Name of the report (This is not the DOS filename)
- Margins for the printed page
- Output of some trial records for form layout adjustment
- Default date format for input and during execution

Report Filter...: This option allows you to enter a filter criteria for the report. Each data record is tested with the expression that you provide here. A record is selected only if this expression evaluates to a TRUE value. For example, if the expression was *DN->amount>1000*, then only records with a DN higher than 1000 are included in the report.

Forms Editor Fonts Menu

This menu contains formatting commands for highlighted characters (and field values) at runtime.

Normal (Removes character formatting, if any)

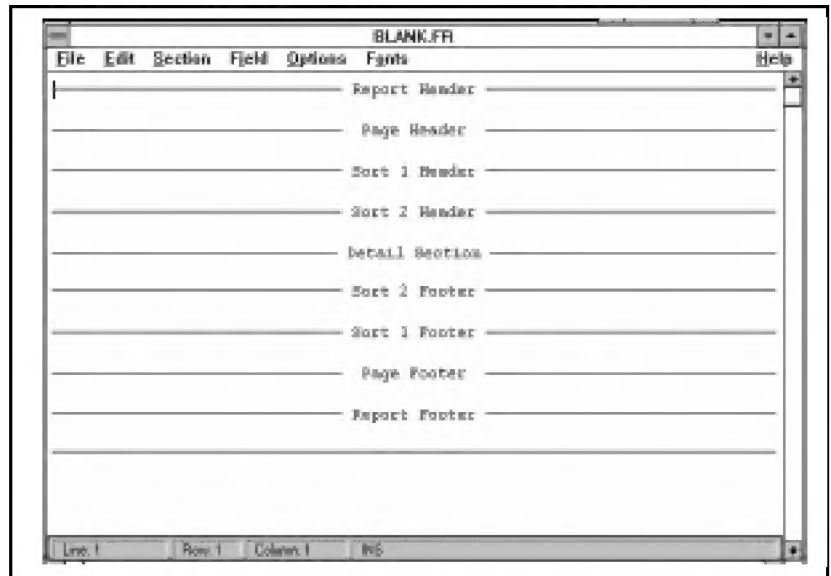
Formatting Normal, **Bold**, Underline, *Italic*, ^{Superscript}, _{Subscript}, ~~Strike~~.

Fonts: Lets you select font and size for highlighted characters and fields. The report generator allows only fixed space fonts. You should be careful that columnar text uses the same font size and spacing to maintain column alignment.

Manipulating Sections

Here is an example of a blank form with all sections in place. The sections are divided by a line labeled with the section name. These lines are place indicators only and will not appear on the printed report.

Figure 50
Example blank report form



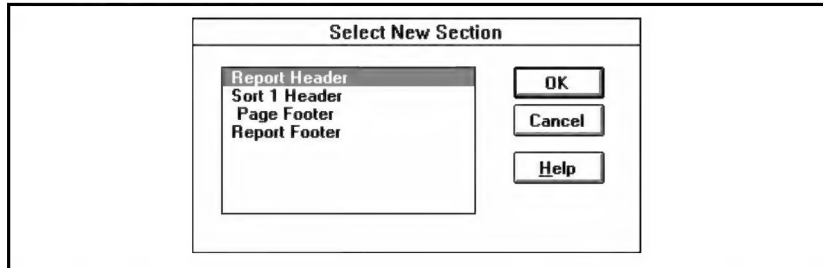
The **Section** menu lets you manipulate the sections as described below.

Insert a Section

To insert a section in a form, choose **Sections - New** with the cursor anywhere in the Editor window. This displays a Select New Section dialog with a list of available sections (all sections that do not appear in the form).

The currently selected Section is highlighted. Select a section and choose **OK** to insert the Section in the current Form.

Figure 51
Select New Section dialog

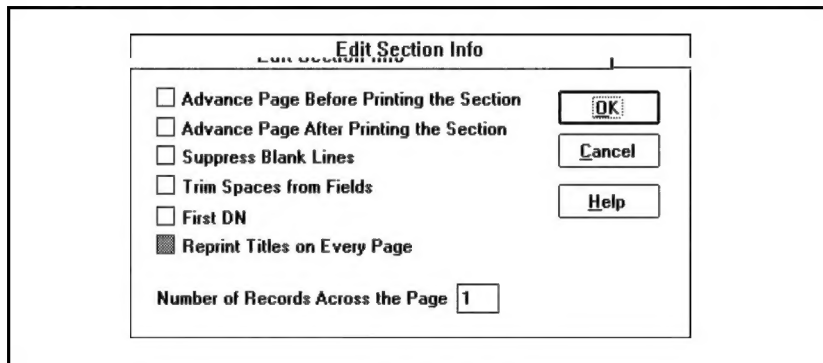


At insertion time, each section contains one blank line. Use the Edit - Insert Line After/Before functions to change the section size at any time while the cursor is in the work area of the section (below the section title line and above the next section title line).

Define Section Parameters

You can set runtime parameters for the section at the current cursor position. Choose **Edit Current** in the Section menu to display an Edit Section Info dialog with check-boxes tht let you set or clear section parameters.

Figure 52
Edit Section Info dialog



Select the appropriate check box to toggle parameter selection. The parameters include:

- Advance Page Before Printing the Section: The section is printed at the top of the next page.
- Advance Page After Printing the Section: Causes a printer Form Feed after this section.
- Suppress Blank Lines: Causes blank lines not to be printed.
- Trim Extra Spaces from Fields: If a field value is shorter than the field maximum length, this selection causes the field length to be truncated to the length of the value.

Note: If you are using a columnar format, this parameter may cause misalignment of columns.

Report Header / Footer

These are printed only once, at the beginning/end of the report. The header is generally used as a title and description of the report. The footer might be used as a report summary. A report header and footer can contain free text and fields such as System Date and Time.

Page Header / Footer

These are printed at the top/bottom of every page in the report (beneath the Report Header on the first page and above the report footer on the last page). The header might contain text such as Report title, column headers and any other pertinent text as well as fields such as System Page Number, Date, and so on. The footer might be used for page numbers and page by page field totals or other pertinent data or text.

Sort Header / Footer

Each of these sections indicate a field that the report will use for a sort break. The field you choose is not printed. You can place text and/or fields at these section breaks to describe the sorts being used in the report.

Detail Header

This section contains a list of data for each record of the database, selected and sorted according to defined criteria.

Edit a Form

Text and data are added at the current position of the cursor within the form. Move the cursor using the mouse or the keyboard arrow keys. The status line at the bottom of the window gives the cursor position by line (row) down and character (column) across. The **<Ins>** key toggles the insert/overtyping mode. The status line indicates INS for insert mode (text moves everything to the right of the cursor to the right) or OT for overtype mode (text replaces existing text at the cursor position).

Type to insert text. There is no automatic line wrapping. If you insert a carriage return (**<Enter>** key), the cursor is returned to the beginning of a new blank line.

You can use the Edit menu to move the cursor within a line:

- Start of Line: left end of line
- End of Line: right of the last character on the line
- Next Word: first letter of the word to the right of the cursor
- Previous Word: first letter of the word to the left of the cursor.

To insert and edit a field at the current cursor position, use the Field menu.

Insert a Field

Use the **Field - Insert New Field** function to display a submenu with a list of data field types to paste at the current cursor location. This option is not available when the cursor is positioned on a section separation line or on an existing field.

The selected field appears at the current cursor location as a series of “x” symbols that represent the maximum number of characters in the field, as defined in the database. You can delete any number of field symbols to reduce the field length. To increase the field length, position the cursor on any field symbol except the first one, and type spaces. You can change the current field attributes using the **Field - Edit Current Field** menu item.

Insert Data Field

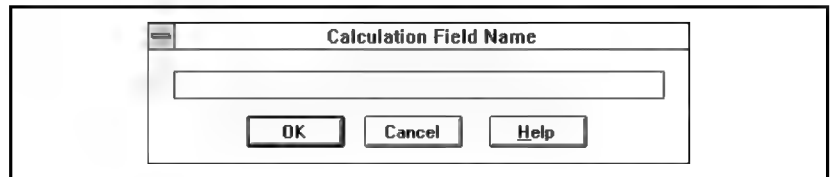
A data field is one field in each record of the current database. If you choose Field - Insert New Field - Data Field, a list of data fields is displayed in a Select Data Field dialog. See “Select Data Field” on page 62 for further details.

Select **OK** to paste the selected field into the form at the current cursor position.

Insert Calculation Field

A Calculation field contains an expression that is a combination of data, functions, and operators. At runtime, the expression result is output for each record. You must supply a name for the field as well as the expression to be evaluated. The **Field - Insert New Field - Calculation Field** option first prompts you for the name of the field in a Calculation Field Name dialog.

Figure 53
Calculation Field Name dialog



You can enter up to 48 alphanumeric characters (not blanks) in the text box to represent the calculated field name.

Select **OK** to enter an expression for the calculated field. The procedure for expression entry is the same as for “Define Selection Criteria” on page 60.

Insert System Field

A system field contains MAT system-dependent information, such as date, time, report page number, and record count. This information is typically in the report or page header or footer. One system field, WRAP_OVERFLOW allows a data field to overflow to the next line or lines. For example, a comment field of 30 characters could contain 10 characters in the data field itself and ten in each of two WRAP_OVERFLOW fields (generally placed directly under the data field itself).

If you select **Field - Insert New Field - System Field**, a list of system fields is displayed in a **Select System Field** dialog. The procedure is the same as in “**Select Data Field**” on page 62.

Select **OK** to paste the current highlighted field in the form at the cursor position.

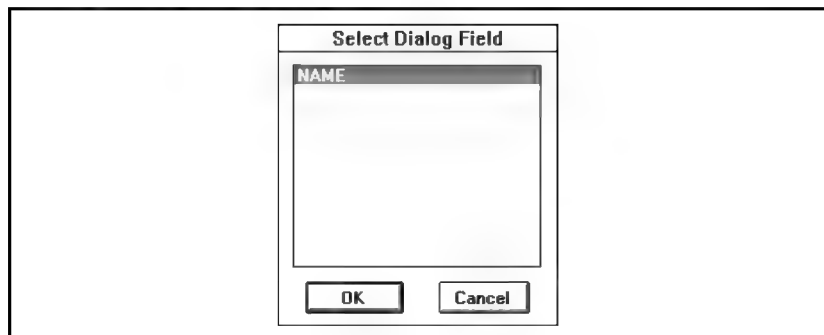
Dialog Field

A dialog field prompts you at runtime to enter information that will appear on the report. You can create, modify, or delete dialog fields through a submenu displayed when you select **Field - Edit a Dialog Field**.

Insert a Dialog Field

If you choose **Field - Insert New Field - Dialog Field**, the **Select Dialog Field** dialog displays a list of dialog fields defined for this report.

Figure 54
Select Dialog Field dialog



The currently selected field is highlighted. Select a field and choose **OK** to paste the selection in the form at the cursor position.

Create a Dialog Field

Select **Field - Edit a Dialog Field - Create**—a Create Dialog Field dialog appears.

Figure 55
Creating a dialog field

Enter a name for the dialog field in the **Field Name** text box. Use up to 30 alphanumeric characters, excluding blanks.

Select the field type by checking one of the **Field Type** radio buttons. The field type acts as a filter to ensure that you enter only this type of data when prompted at runtime. Choose **OK** to add the dialog field to a list of dialog fields that you can use with this database.

Modify a Dialog Field

Select **Field - Edit a Dialog Field - Modify** to display the Select Dialog Field list box. See “Insert a Dialog Field” on page 126. Select the name to use, then choose **OK** to display the Name dialog field dialog.

The data you can modify for a dialog field includes:

User Prompt: Initially, this is the same as the name you created for this field. Use up to 30 alphanumeric characters, including blanks, for display at runtime to prompt for the input for this field.

Prompt Order: If your report contains more than one runtime prompt, you can set their order by entering a sequence number in this field.

Figure 56
Dialog Field edit dialog

Field Width: Enter a numeric value in the range 1-9999. This value sets the width of the field that accepts the data. The default is 20.

Delete a Dialog Field

When you select **Field - Edit a Dialog Field - Delete**, the Select Dialog Field dialog appears. Select the name to delete, then choose **OK** to delete the dialog field from the list and return to the Forms editor. **Cancel** returns to the Forms editor without making any changes.

Edit Field Attributes

This option, available from the Field menu, is used to edit the attributes for the current field. This option is available only when the cursor is positioned on a field. The field name is displayed in the status bar of the form window. The option displays a set of attributes that can be modified for the current field. You can modify the field attributes as needed.

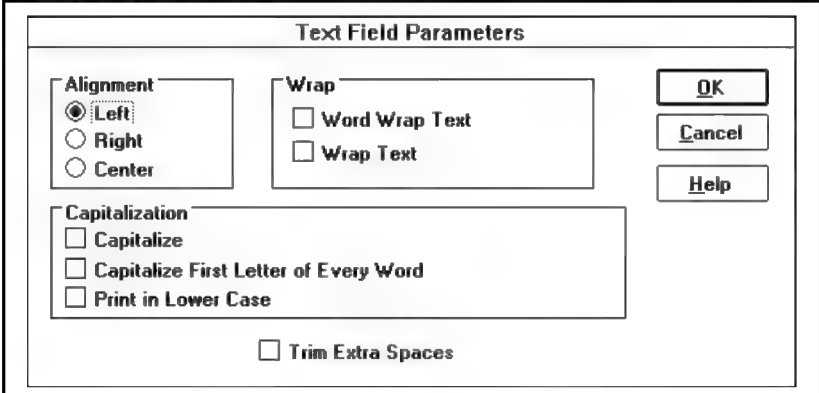
The attributes that you can modify depend on the type of field. Field types include:

- Text (alphanumeric characters)
- Numeric (numbers, including thousand separators and decimal point)
- Date (date in predefined formats)
- Logical (Boolean)

Edit Text Field Attributes

If the cursor is located within a text field and you select Field - Edit Current Field, a Text Field Parameters dialog displaying the current attributes for the field appears.

Figure 57
Text Field Attributes



The image shows a dialog box titled "Text Field Parameters". It contains several groups of controls:

- Alignment:** A group box containing three radio buttons: "Left" (selected), "Right", and "Center".
- Wrap:** A group box containing two checkboxes: "Word Wrap Text" and "Wrap Text".
- Capitalization:** A group box containing three checkboxes: "Capitalize", "Capitalize First Letter of Every Word", and "Print in Lower Case".
- Trim Extra Spaces:** A checkbox located below the Capitalization group.
- Buttons:** On the right side of the dialog, there are three buttons: "OK", "Cancel", and "Help".

The following attributes can be modified:

Field Alignment: By default, text data at runtime is left-aligned. You can use the radio buttons to select left, center, or right alignment.

Wrap: If the field length on the form is too short to accommodate the data at runtime, you can select a wrap option to run the text to a **WRAP_OVERFLOW** system field that you have already defined. The Wrap option breaks at the end of the current field, and the Word Wrap option breaks at the end of the last word before the end of the field. The default attribute has no wrap option selected.

Capitalization: By default, all text in the data field is printed as stored in the database. You can change this to all capitals, leading capitals, or all lower case, by selecting the appropriate check-box.

Trim Extra Spaces: This check-box trims the field length to the length of the data that is entered at runtime.

Note: If you are using columns, this option may cause columns to become misaligned.

Edit Numeric Field Attributes

If the cursor is located within a numeric field and you select **Field - Edit Current Field**, a Numeric Field Parameters dialog displaying the current attributes for the field appears.

Figure 58
Numeric Field Parameters dialog

Numeric Field Parameter	
Alignment ☐ Left ☒ Right ☐ Center	Response 0 Currency Symbol
☐ Hexadecimal Format ☐ Suppress Zero Values ☐ Pad with Zeroes ☒ Use Comma Format	Negative Sign Prefix - Negative Sign Suffix Positive Sign Prefix Positive Sign Suffix
Footer Fields Summerization Type N/A ☐ Retain Value After Printing	
OK Cancel Help	

The following attributes can be modified:

Field Alignment: By default, numbers are left-aligned at runtime. You can use the radio buttons to select left, center, or right alignment.

Number of Decimal Places: If the field contains a real number, this option lets you select the number of digits printed to the right of the decimal point.

Currency Symbol: If the field represents money, you can use this option to define the currency symbol.

Sign Representation: This option lets you select how to represent negative and positive number values. You can enter a character for prefix and suffix for both positive and negative numbers.

Zero Values: Check the Suppress Zero Values check-box to suppress printing this field if it contains a value of zero. Check the **Pad with Zeroes** check-box if you wish to align the number to the right of the field and fill with leading zeroes. Check the **Use Comma Format** check-box to insert a comma between thousand values in the field.

In addition to these attributes, you can edit the following attributes for fields that are located in the footer section of the report:

Summarization Type: A numeric field in the footer could require the report to print a summary value. This option is a function selector that displays a list of possible summary values, such as total, average, maximum, minimum, or count. You can also print the actual value for the field by selecting Value.

Retain Value After Printing: If the footer is a page footer, you can check this option to print “running” values instead of the value for each page.

Edit Date Field Attributes

If the cursor is located within a Date field and you select **Field - Edit Current Field**, a Field Name Edit dialog displaying the current attributes for the field appears.

Figure 59
Field Name Edit dialog

The image shows a dialog box titled "[Field: SYS->DATE]". Inside the dialog, there is a section labeled "Date Format" with four radio button options: "MMDDYY" (which is selected), "DDMMYY", "MMDDYYYY", and "MMMDDYYYY". To the right of these options are three buttons: "OK", "Cancel", and "Help". At the bottom of the dialog, there is a label "Date Delimiter:" followed by a text box containing the character "/".

You have a choice of four formats for the Date output, selectable by radio button:

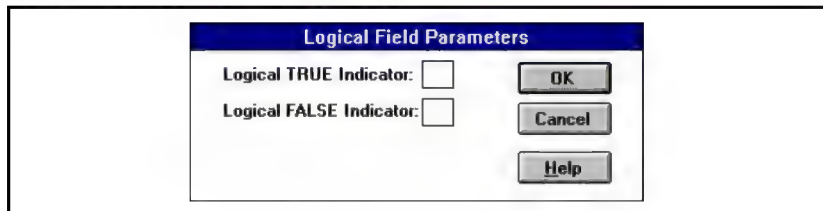
MMDDYY
DDMMYY
MMDDYYYY
MMMDDYYYY

You can also define the date delimiter by entering a required one-character delimiter in the Date Delimiter text box (/ or - for example).

Edit Logical Field Attributes

If the cursor is located within a Logical field and you select **Field - Edit Current Field**, a Field Name edit dialog displaying the current attributes for the field appears.

Figure 60
Logical Field Parameters dialog



You can define the characters that indicate the true and false conditions by entering the desired characters in the text boxes for Logical TRUE Indication (T, 1, or Yes, for example) and Logical False Indication (F, 0, or No, for example).

Edit Calculation Field Expression

This option is available only when the cursor is positioned on a calculation field and you select **Field - Edit Field Expression**, or when you are first inserting a calculation field in the form. The option shows the existing calculation expression, if any, in a dialog and allows you to make modifications. The action of this dialog is the same as that for "Define Selection Criteria" on page 60.

Setting Report Parameters

The Forms editor Options menu lets you set parameters for the report. These parameters are stored with the form and will be operative at runtime. The parameters are defined in a dialog when you select **Options - Report Parameters** in the Forms Editor. Parameters include:

Figure 61
Report Parameters dialog

Report Name: A text box that lets you enter up to 36 contiguous alphanumeric characters. This name is used in the MAT system as the name for the report and the form. This is not the same as the DOS filename.

Default Date Format: A pair of radio buttons that lets you define the format in which dates are printed at runtime. The two formats are MM/DD/YY or DD/MM/YY.

Print Trial Records: Run the report with just a few records. This enables you to check that the form generates a report with a suitable appearance and layout.

Margins: Four text boxes that let you set the page margins. Enter numeric data only, and ensure that the page layout is valid.

Character Formatting

You can set the appearance of printed text using the Fonts menu. By default, text and fields are output in the Windows default font with Normal (unmodified) attributes.

A selection from this menu acts on the selected data. To highlight data (text and fields) place the cursor at one end of the data to be highlighted, hold down the left mouse button and move the cursor to the other end of the data. To turn off highlighting, click anywhere in the form that is not highlighted.

Choose the Fonts menu to display a list of character enhancements. Select one to print the highlighted text with that enhancement. Enhancements include:

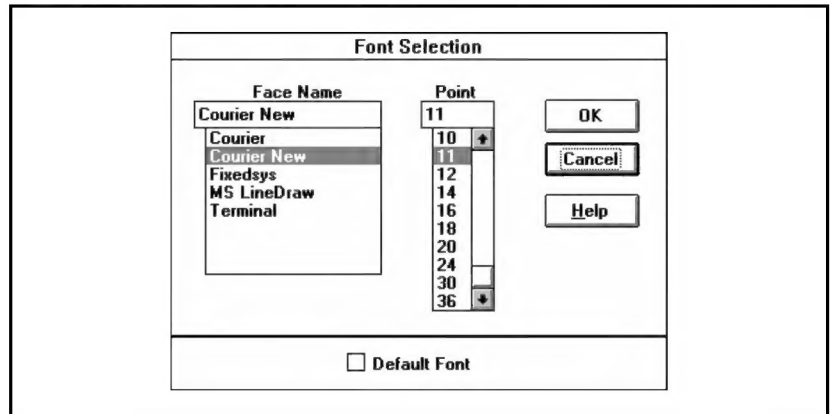
Normal, **Bold**, Underline, *Italic*, Superscript, Subscript, ~~Strike~~.

When you apply an enhancement, highlighting is removed. If you desire more than one enhancement for any text, you must highlight the text again and select another enhancement. To remove an enhancement, highlight the text and select Normal from the Font menu.

Font Selection

The **Fonts** option brings up the Font Selection dialog box, from which you can select a font for the selected text.

Figure 62
Font Selection dialog



The Face Name box contains the name of the font for the selected text. A list box shows available fonts with the current font highlighted. Click the desired font to change the current font in the Face Name box. Use the arrows to help find the desired size, and click to select the font size.

Select **OK** to set the highlighted text to the currently selected font and size.

To use a single font for the entire report, select the font face and click the **Default Font** check-box. This becomes the Normal enhancement selection.

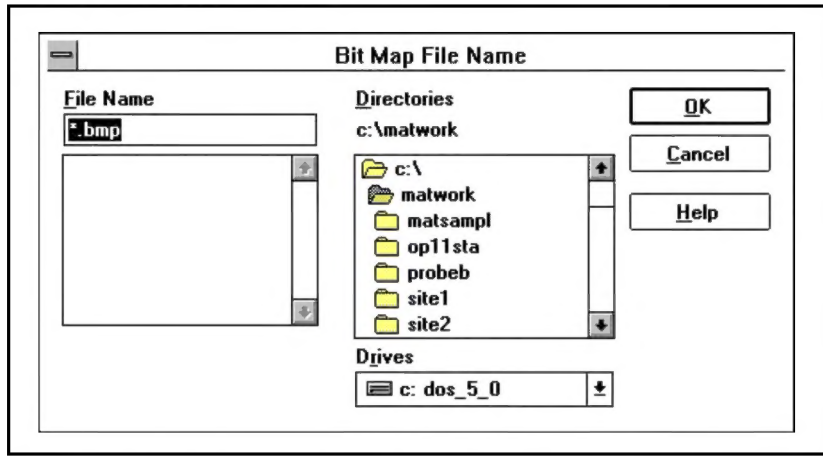
Enhancing the Report

You can enhance the report with pictures. Pictures must be Bitmap images. Use the Edit - Picture from Clipboard or Edit - Picture from Disk File options to paste a bitmap image at the cursor position. To use the clipboard option, the clipboard must contain a bitmap image. To use the Disk File option, there must be a bitmap file in the working directory.

Include a Bitmap from Disk

Choose the **Edit - Picture from Disk File** option to display the Bit Map File Name dialog.

Figure 63
Bit-Map File Name dialog



The dialog includes a text box containing *.BMP representing the name of a file. You can replace * with the name of a bit map that exists in the working directory. When you select **OK**, this image is placed at the cursor position, expanding the current line width to accommodate the image height.

Report Criteria

The Forms editor Options menu lets you select criteria for record selection in the report. The criteria cannot be set at runtime, and are stored with the form in which the selection is made. The criteria are defined in an expression that displays in a Select Record Criteria dialog when you select **Options - Record Criteria**. The action of this dialog is the same as for “Define Selection Criteria” on page 60.